

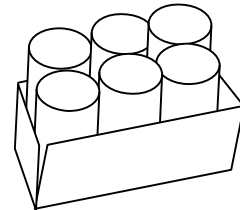
Problem of the Month

Diminishing Return

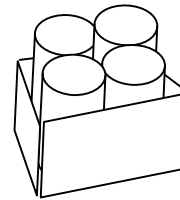
Level A:

Some classes are going out for a picnic lunch. The teachers bought drinks in packs for their classes.

Thirty-three students are in Mrs. Browne's class. Mrs. Browne bought six-packs for her class. She needs helpers, so she picks students to carry one six-pack each.









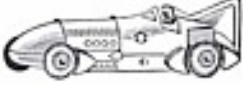














Twenty-two students are in Mrs. Robinson's class. Mrs. Robinson bought four-packs for her class. She needs helpers, so she picks students to carry one four-pack each.



Which teacher had to pick more helpers?

Show how you found your answer.

Level B:

Amusement Center Store					
					
Yo Yo \$1.22	Doll \$2.75	Duckie \$1.85	Tractor \$5.97	Airplane \$6.47	
					
Ball \$2.16	Racecar \$7.13	Dog \$4.57	Jump Rope \$1.46	Car \$5.18	
					
Elephant \$3.16	Bear \$4.89	Xylophone \$7.11	Tank \$6.45	Checkers \$4.77	
					
Boat \$8.04	Train \$6.71	Jacks \$2.31	Truck \$6.21	Whistle 98¢	Pinwheel 87¢

Mia has earned \$43.94 of tokens playing games at the amusement center. The store in the amusement center has the following toys for sale. She plans to get toys and donate them to a local charity for needy children. The tokens are only good in this store, so she plans to spend all the tokens. What combinations of toys can she buy in order to spend all the tokens?

Show how you found your solution.

Is your solution the only possible answer? Explain.

Level C:

Maxine and Sammie have the same size lawn. Maxine can mow the lawn in 24 minutes and Sammie can mow the lawn in 36 minutes. At what time will Sammie have twice as much lawn to mow as Maxine?

Maxine and Sammie have to also mow their parking strips that are the same size. Maxine can mow the parking strip in 6 minutes and Sammie can mow the parking strip in 9 minutes. At what time will Sammie have twice as much grass to mow as Maxine?

Level D:

Rollie was successful in losing weight. He had a goal weight in mind. He went on a diet for three months. Each month, he would lose one-third of the difference between his current weight and his goal weight and an additional three pounds. At the end of three months, he was just 3 pounds over his goal weight. How many pounds did he lose in those three months?

Explain how you arrived at your solution.

Level E:

The probability of being born a male is $0.\overline{466}$. The probability of being born in North America is $0.\overline{153846}$. The probability of being born in an urban location is $0.\overline{3571428}$. Find the exact probability that a baby will be born a male, in North America, in an urban location.

Explain the method you used to find your solution.

Problem of the Month

Diminishing Return

Primary Version Level A

Materials: A picture of the four-pack and six-pack of drinks

Discussion on the rug: (Teacher holds up the pictures of the four pack) "Here is a picture of a drink holder. How many drinks does this holder have?" (Teacher holds up the pictures of the six-pack) "Here is a picture of a different drink holder. How many drinks does this holder have?" (Teacher asks students to explain their answers. Some students come forward and demonstrate to the class how they arrived at their answer.) (Showing the four-pack) "If we have two helpers and each helper carries one of these holders of drinks, how many drinks will we have in all?"

In small groups: (Each student has access to counting manipulatives. Teacher asks the following questions. Only go on to the next question if students have success.)

If 12 of us are going on a picnic, how many drink holders of this size (four-pack) do we need to take?

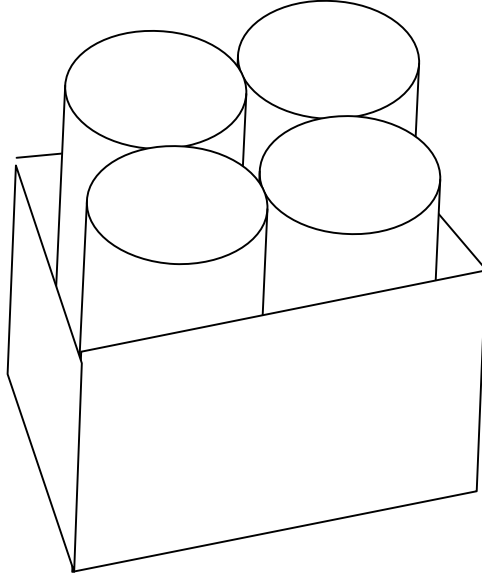
If 12 of us are going on a picnic, how many drink holders of this size (six pack) do we need to take?

Why do we need fewer six-packs than four-packs?

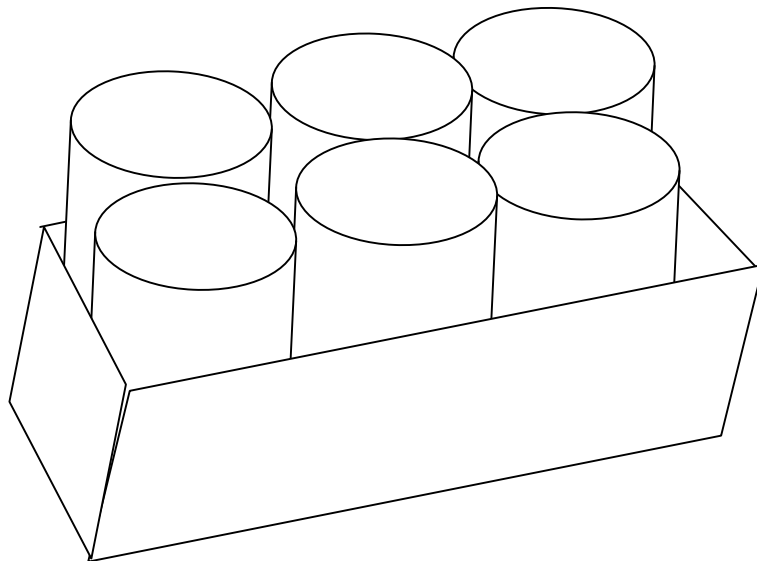
(If students are successful with these values, increase the size of the students going on a picnic, careful to ask for multiples of four and three (12, 24, 36, etc.)

At the end of the investigation, have students either discuss or dictate a response to this summary question.)

Tell me how you figured out your answer and how do you know.



4 - Pack



6 - Pack